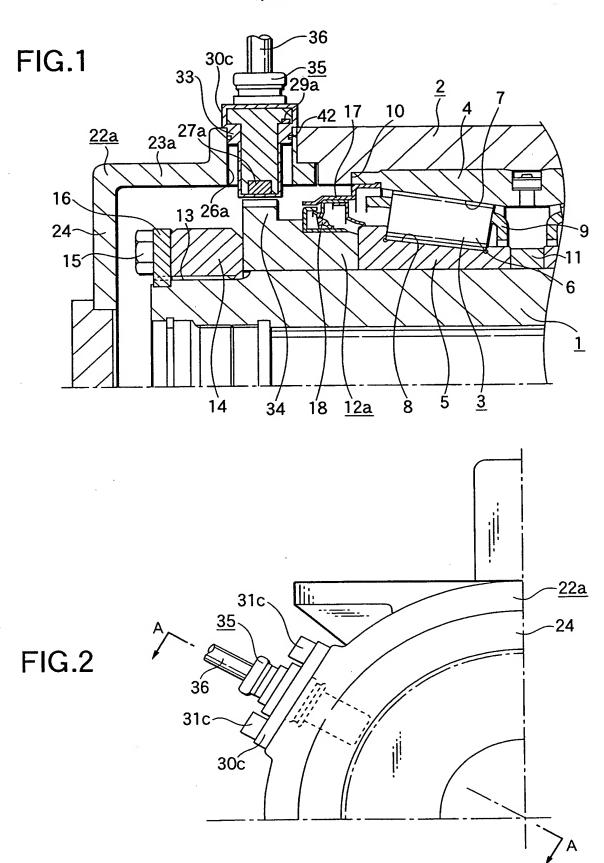
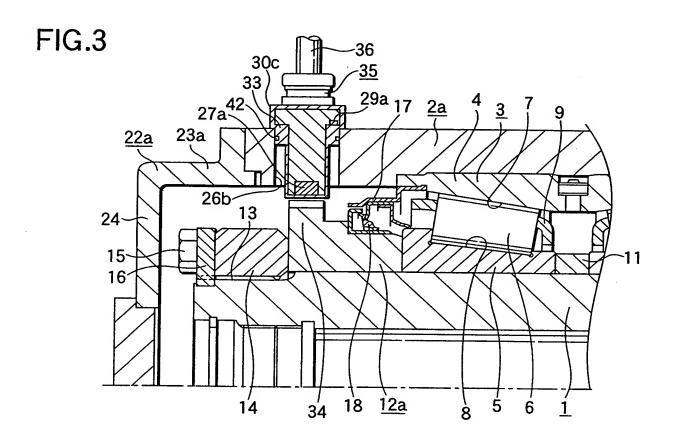
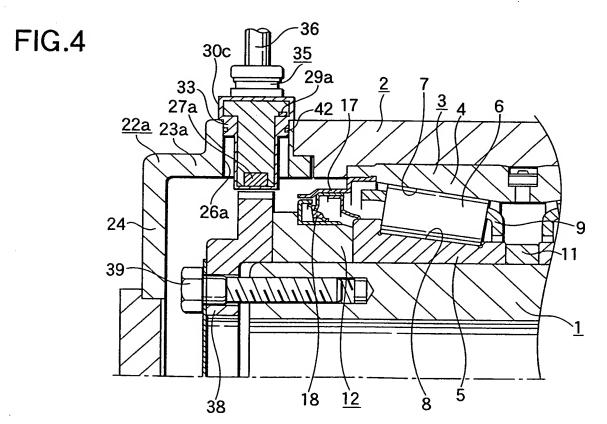
Sheet of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

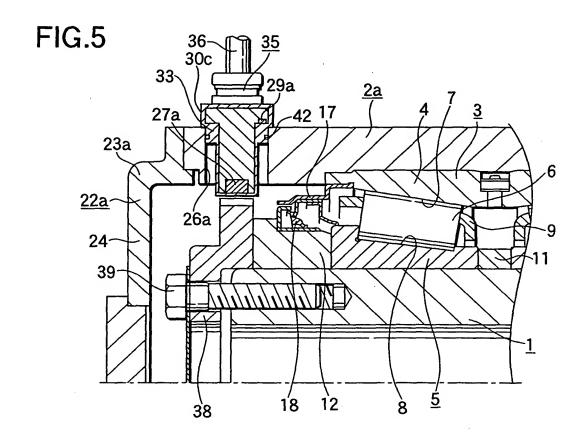


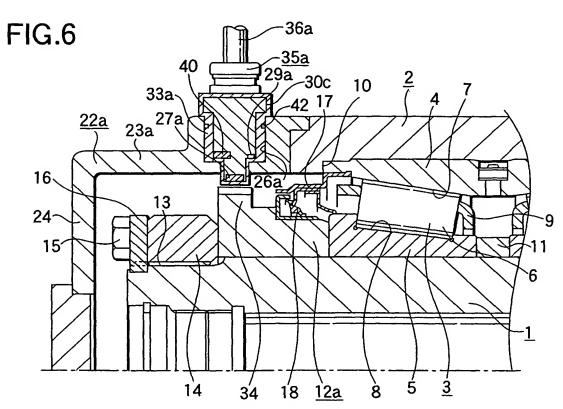
Sheet 2 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955



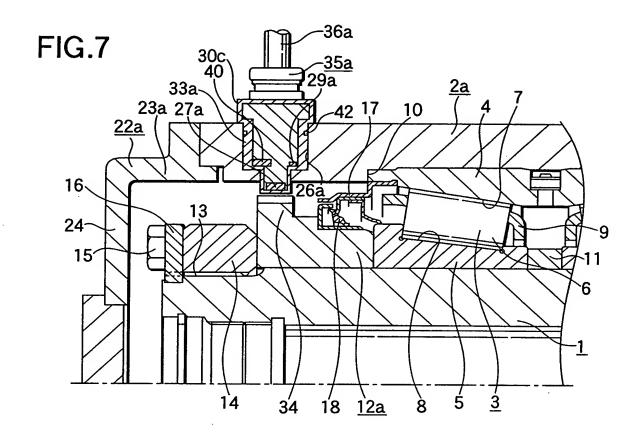


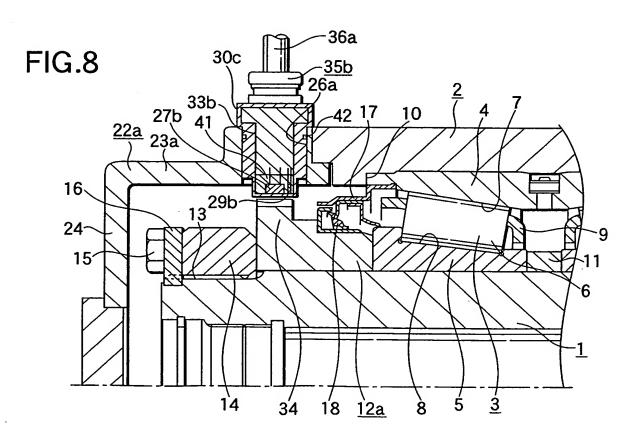
Sheet 3 of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955



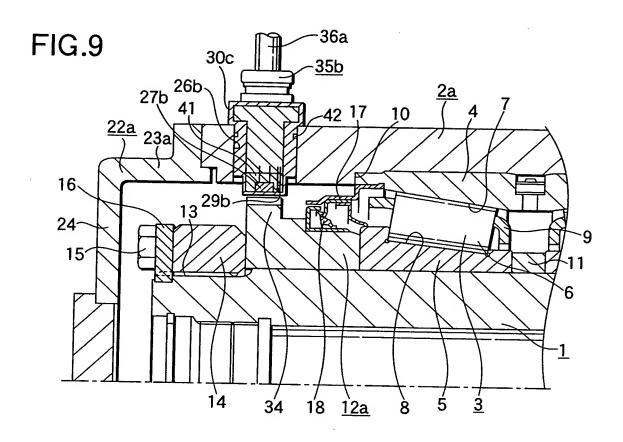


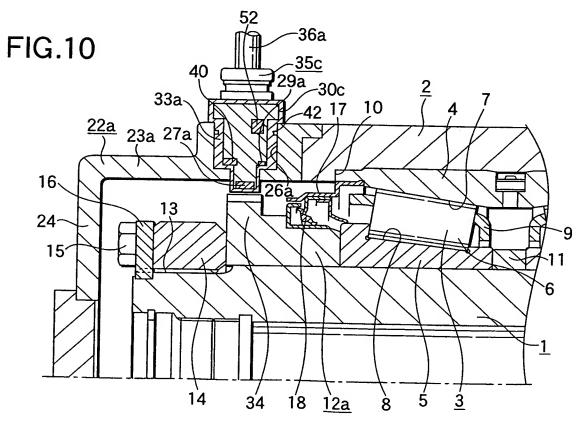
Sheet \(^1\)\ of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955





Sheet S of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
C Q76955





Sheet of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR Q76955

6/36

FIG.11

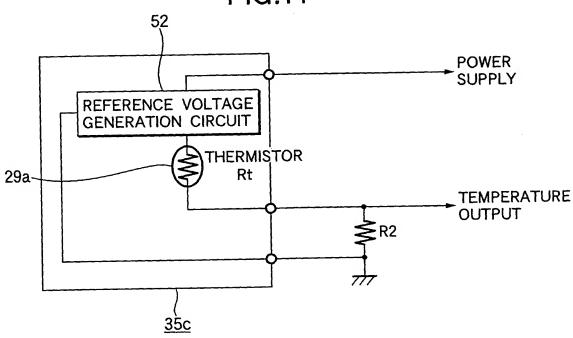
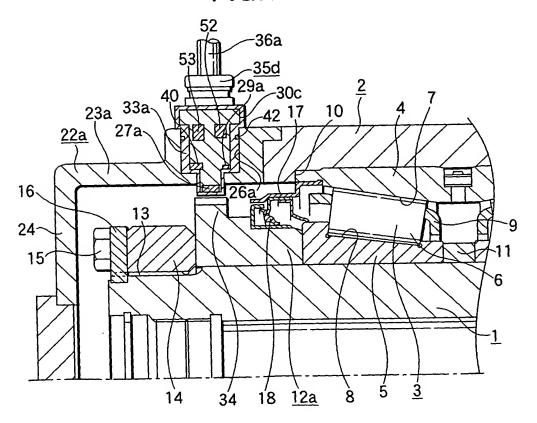


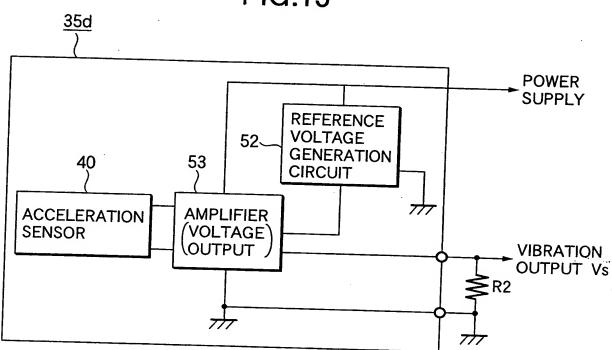
FIG.12



Sheet \int of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

7/36

FIG.13



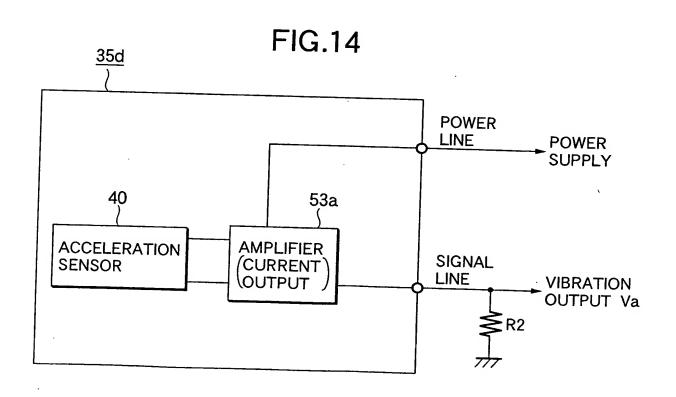
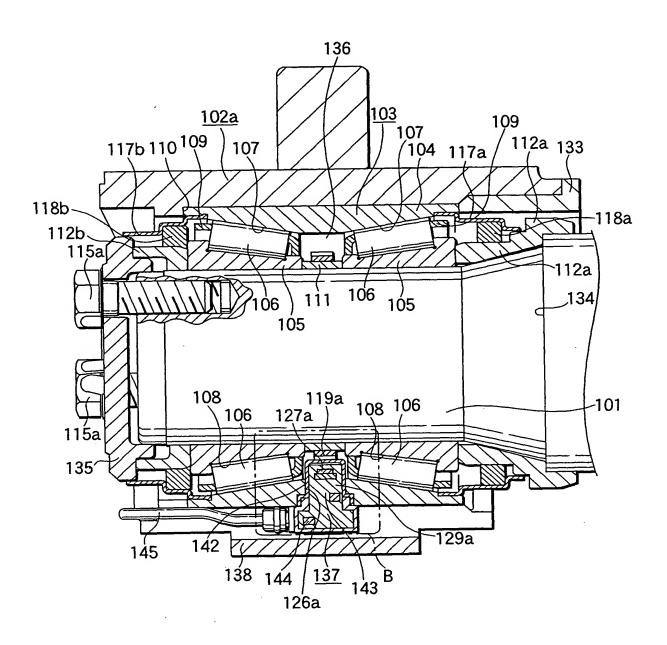
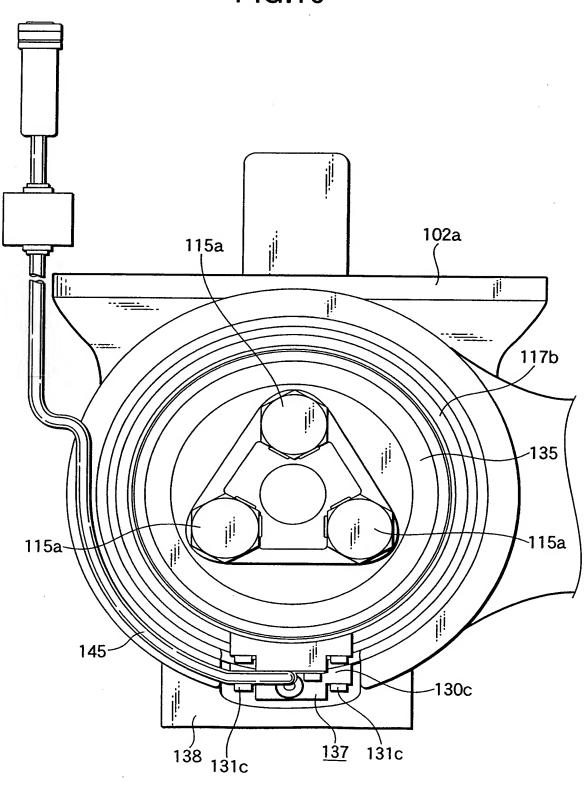


FIG.15



Sheet 1 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

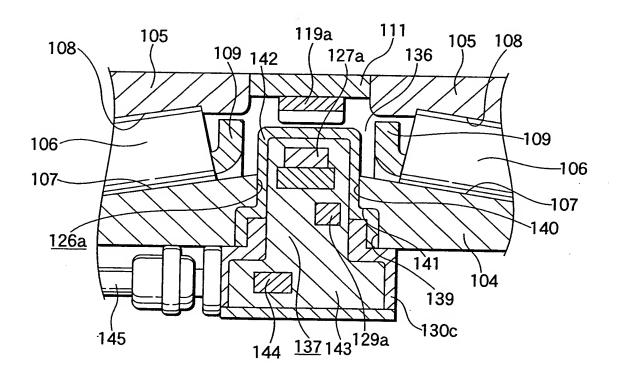
FIG.16



Sheet 10 of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955

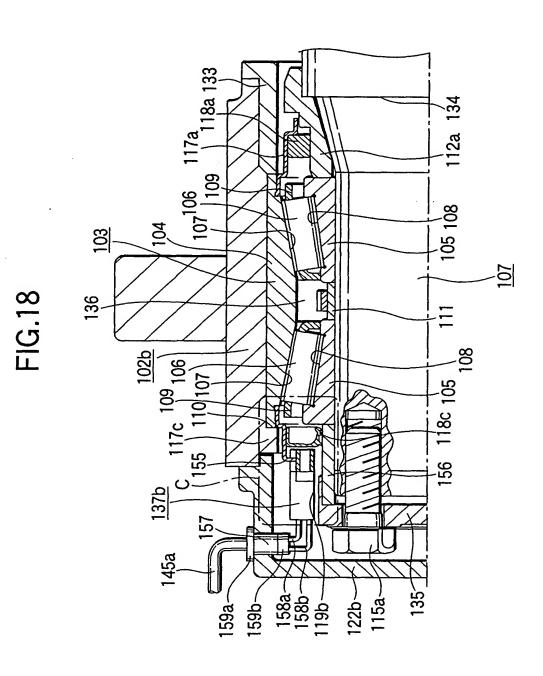
10/36

FIG.17



S Sheet 11 of 36
h Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

11/36



S Sheet 12 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

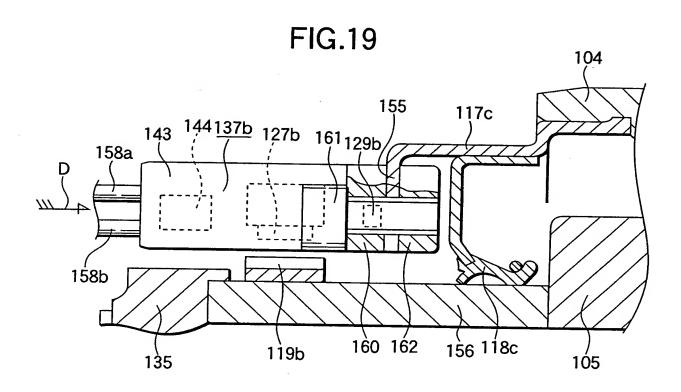
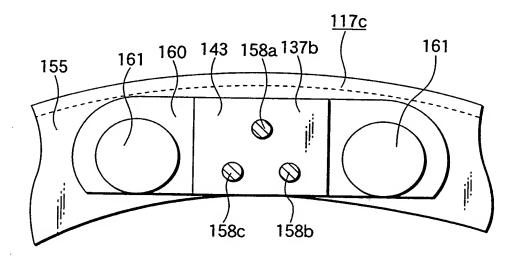


FIG.20



Sheet 13 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
076955

13/36

FIG.21

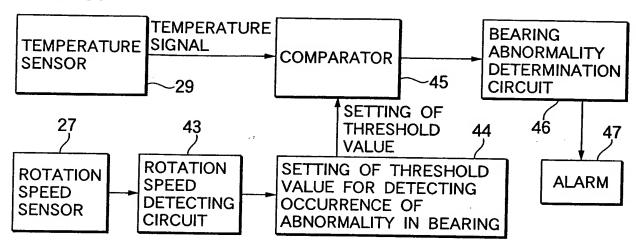


FIG.22

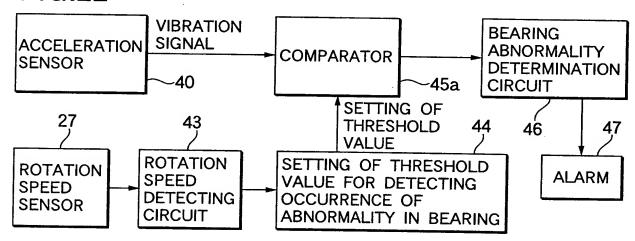
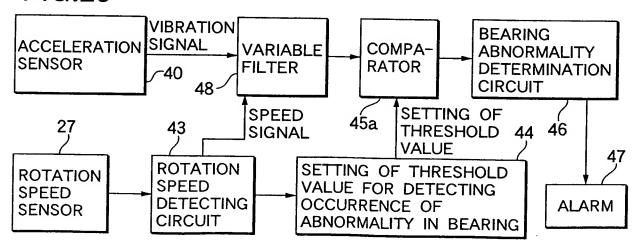


FIG.23



Sheet 1 4 of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955

FIG.24

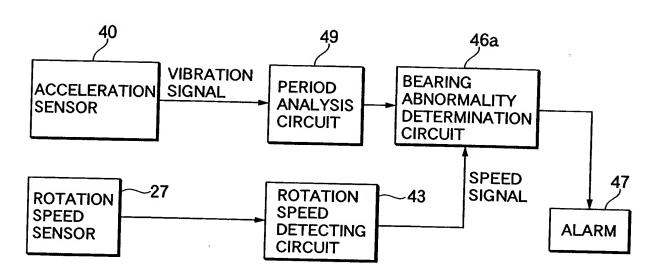
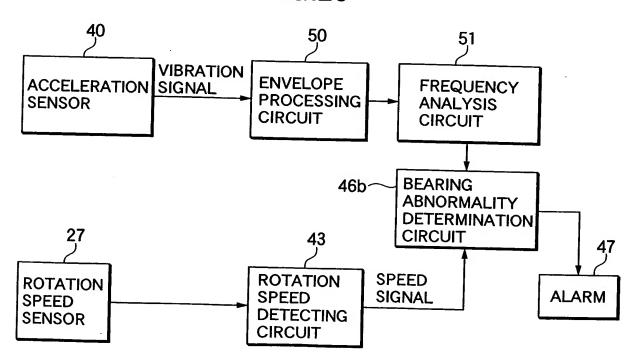
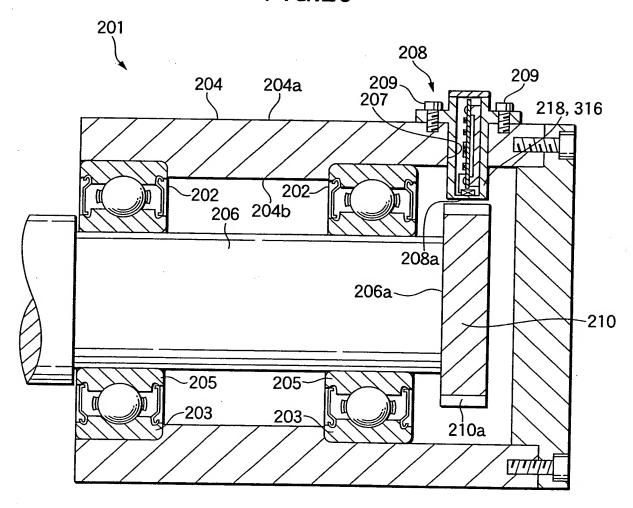


FIG.25



Sheet 15' of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955

FIG.26



16/36

FIG.27

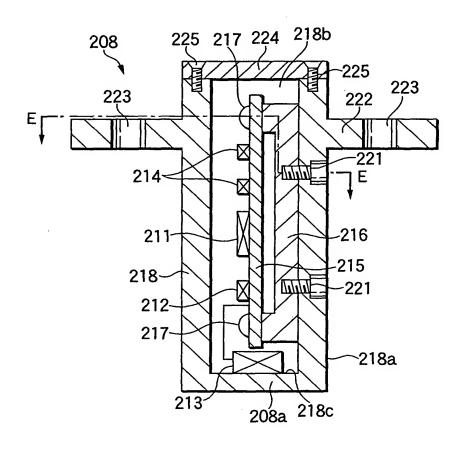
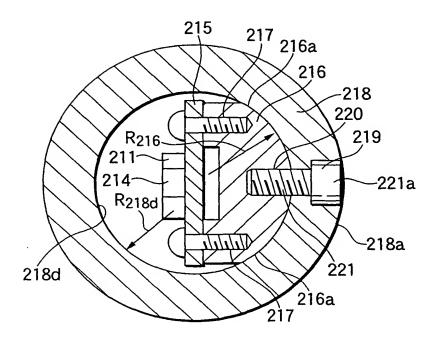


FIG.28



Sheet 17 of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955

FIG.29

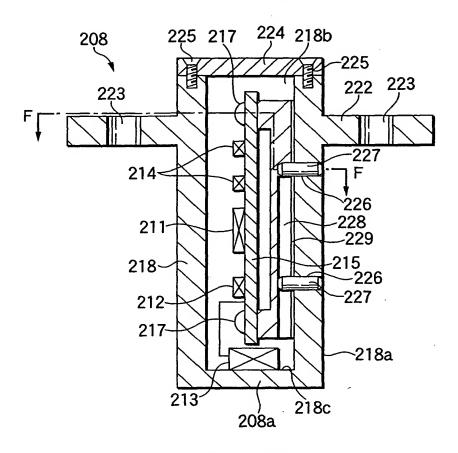
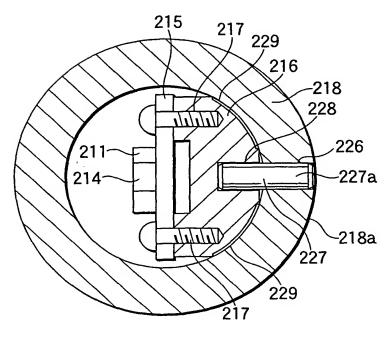
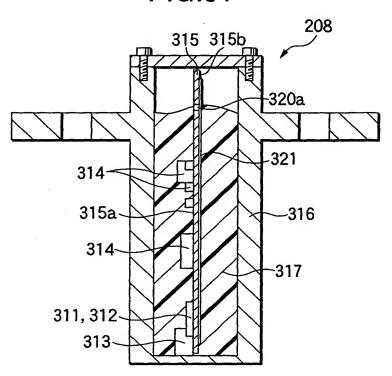


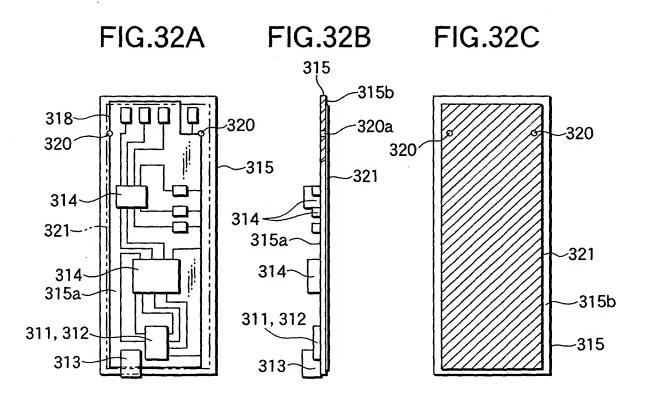
FIG.30



Sheet \7 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

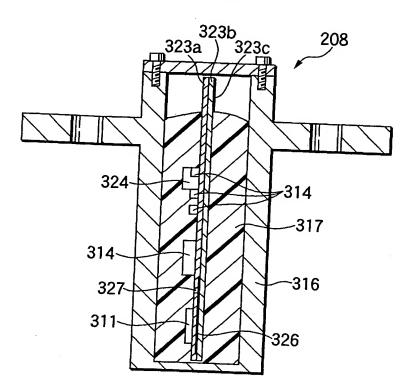
FIG.31

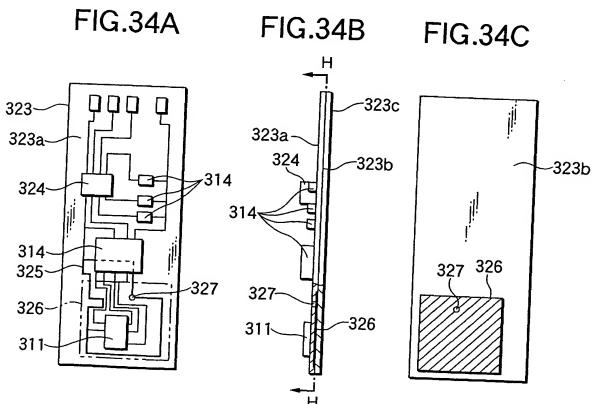




Sheet \% of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

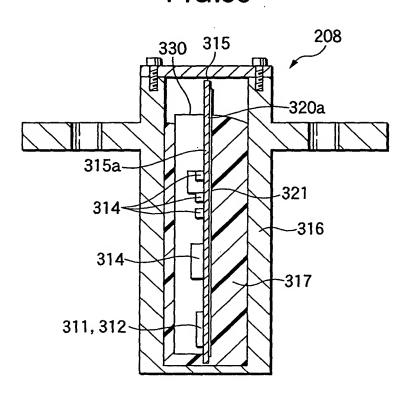
FIG.33

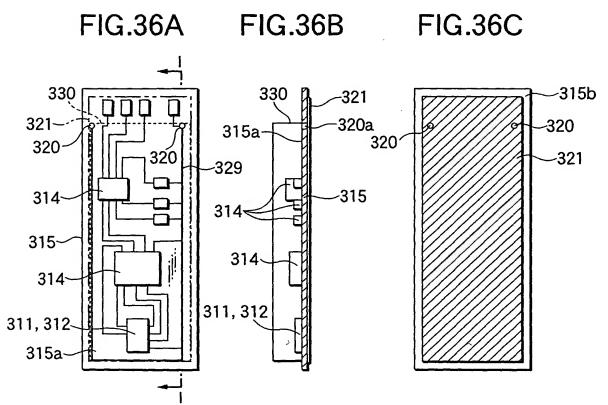




Sheet 20 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.35





Sheet 1 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.37

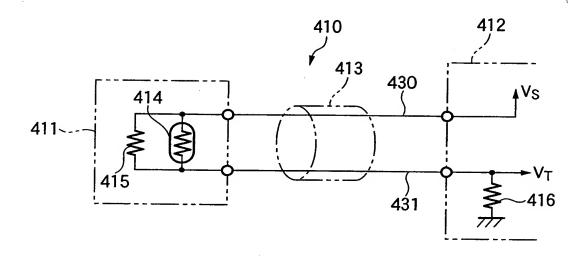
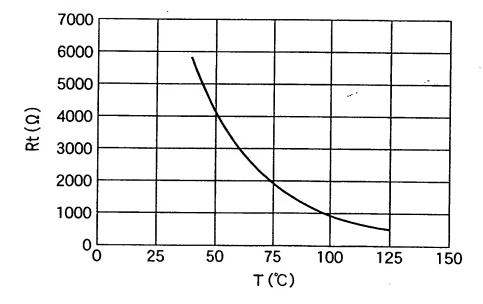


FIG.38



Sheet 11 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.39

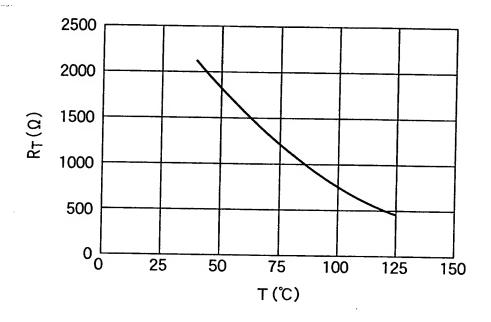
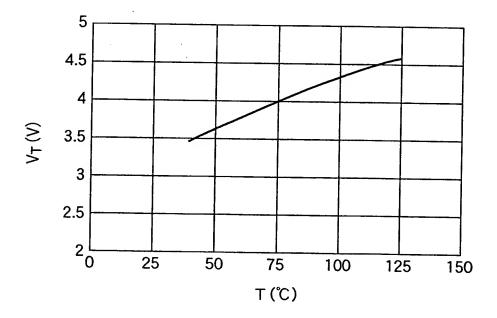


FIG.40



Sheet of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.41

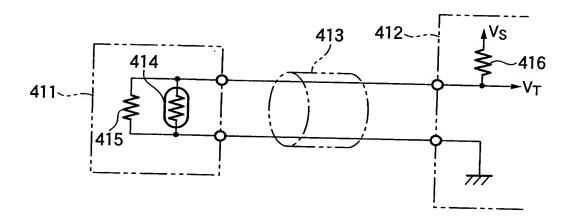
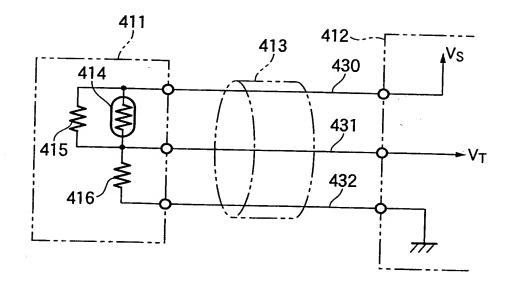


FIG.42



Sheet \$\frac{1}{2} \text{ of 36}\$
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.43

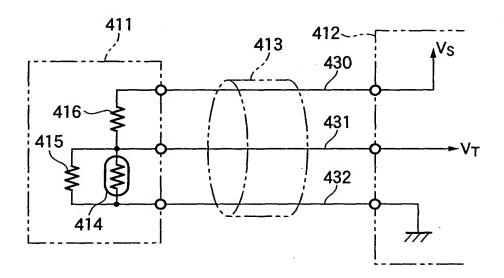
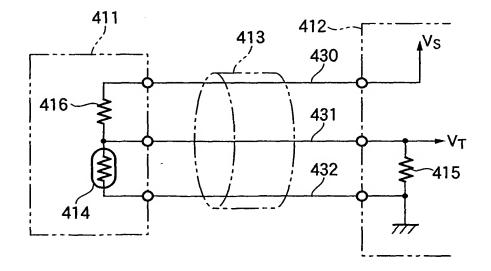


FIG.44



Sheet 5 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.45

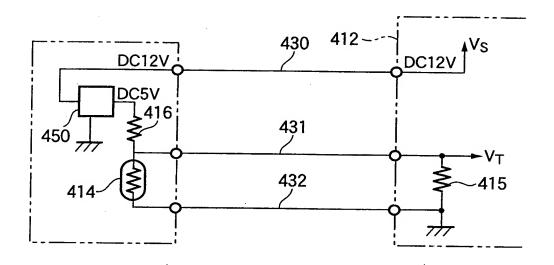
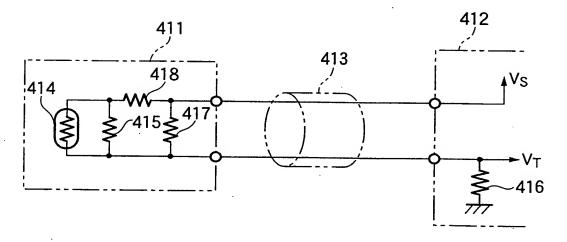
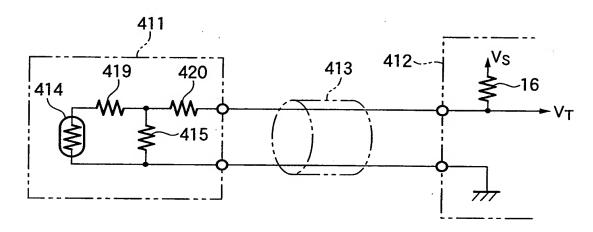


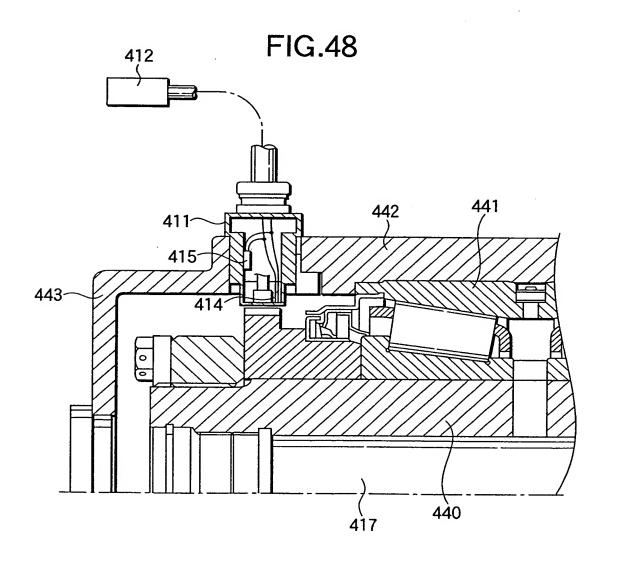
FIG.46



Sheet (4) of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955

FIG.47





Sheet ¹ 7 of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955

FIG.49

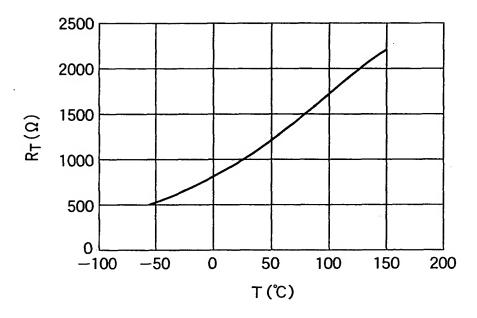
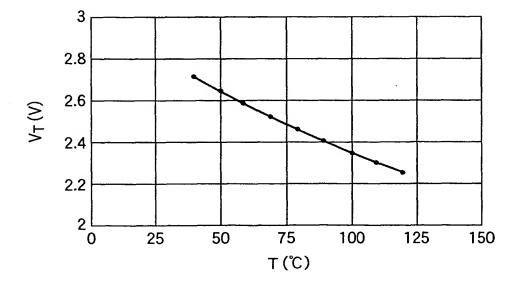
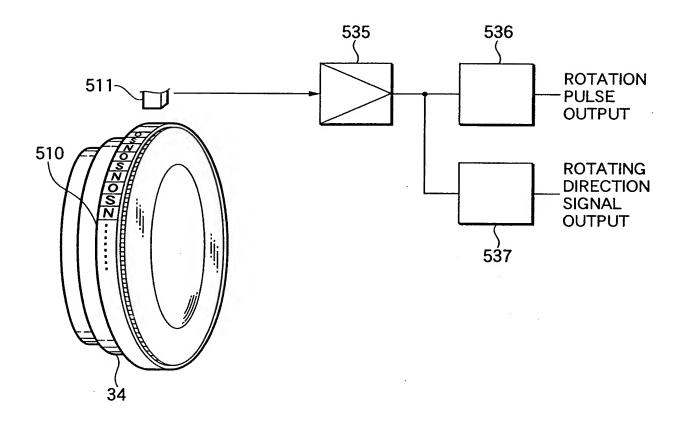


FIG.50



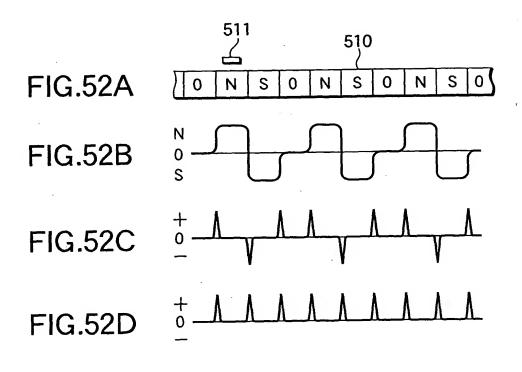
Sheet % of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

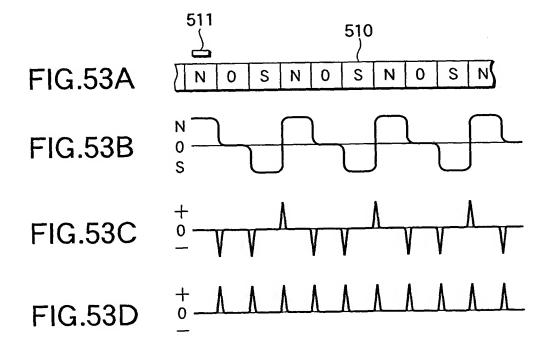
FIG.51



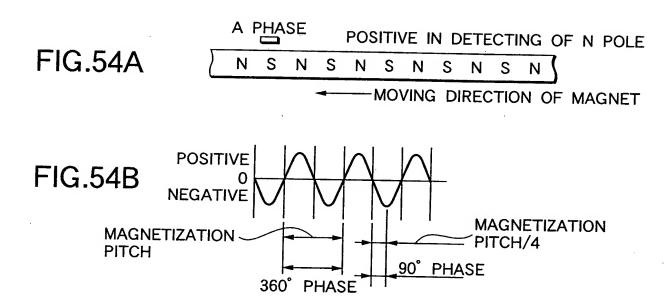
Sheet 15) of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955

29/36

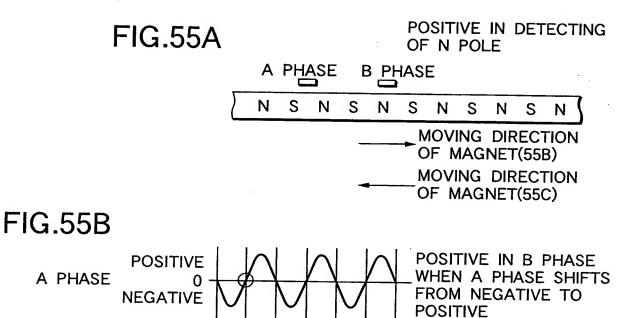


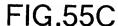


Sheet 30 of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955



31/36





B PHASE

POSITIVE

NEGATIVE

0

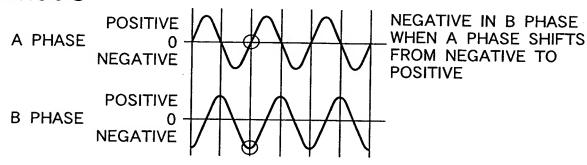


FIG.56

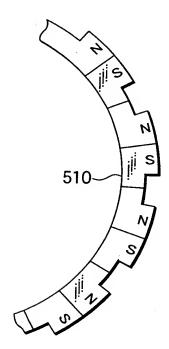


FIG.57

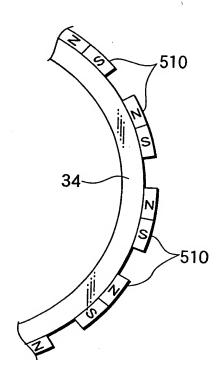
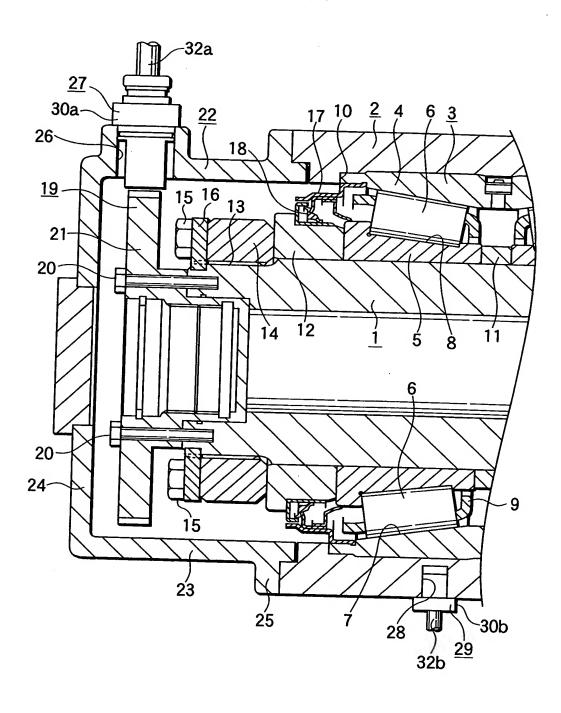


FIG.58

510
511
34

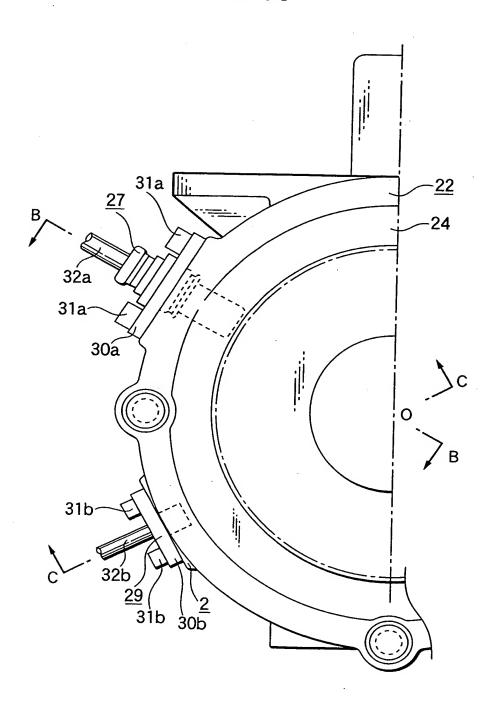
Sheet \$33 of 36
Kouichi Morita et al.
Con of Applni. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.59



Sheet 3th of 36 Kouichi Morita et al. Con of Appln. No. 09/996,593 Filed August 20, 2003 SENSOR AND ROLLING BEARING APPARATUS WITH SENSOR Q76955

FIG.60



Sheet 35 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.61

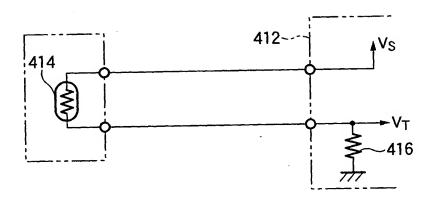
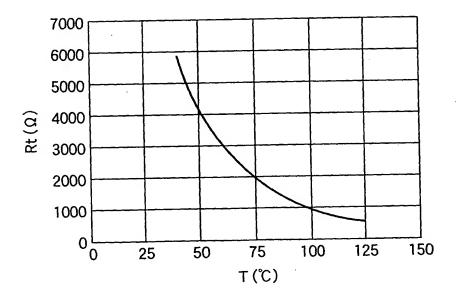


FIG.62



Sheet \$ 6 of 36
Kouichi Morita et al.
Con of Appln. No. 09/996,593
Filed August 20, 2003
SENSOR AND ROLLING BEARING APPARATUS
WITH SENSOR
Q76955

FIG.63

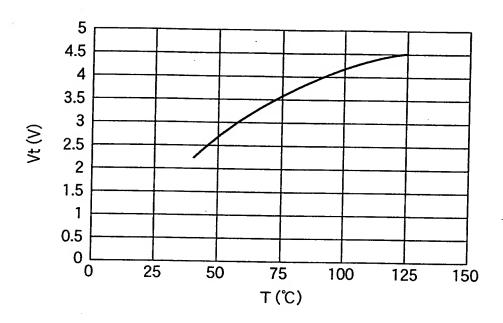


FIG.64 246

